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ABSTRACT

The Beverly Public Schools Comprehensive Remedial Reading Program, funded under Title I of the Elementary Secondary Education Act, was evaluated in the Spring of 1971. The program was comprised of Reading Laboratories using materials produced by Educational Development Laboratories, Inc. in three elementary schools, two junior high schools, and a senior high school, and of Remedial Reading Classes conducted in three elementary schools. Children in grades two through 12 participated in the Laboratories year round. Each child was scheduled for several sessions per week throughout the school year. Children were scheduled for Remedial Reading Classes for eight week quarters. Third graders attended in quarter one, sixth graders in quarter two, fifth graders in quarter three, and fourth graders in quarter four. Children in the Remedial Reading Classes were transported from their home schools to the classes conducted at the three ESEA Title I schools. This evaluation discusses the validity of the Educational Development Laboratories materials and procedures, and the adequacy of diagnostic and teaching procedures used in the Remedial Reading Classes. It then considers the evidence of pupil achievement. [Reproduced from the best available copy.] (Author/JM)

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AN EVALUATION OF THE BEVERLY PUBLIC SCHOOLS COMPREHENSIVE REMEDIAL READING PROGRAM UNDER TITLE I - E.S.E.A.

BY

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and

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Introduction

The Beverly Public Schools Comprehensive Remedial Reading Program was evaluated in the Spring of 1971. The program was comprised of Reading Laboratories using materials produced by Educational Development Laboratories Inc. in three elementary schools, two junior high schools and a senior high school, and Remedial Reading Classes conducted in three elementary schools.

Children in grades 2 through 12 participated in the Laboratories year round. Each child was scheduled for several sessions per week throughout the school year. Children were scheduled for Remedial Reading Classes for eight week quarters. Third graders attended in quarter 1, sixth graders in quarter 2, fifth graders in quarter 3 and fourth graders in quarter 4. Children in the Remedial Reading Classes were transported from their home schools to the classes conducted at the three Title I schools.

This evaluation discusses the validity of the Educational Development Laboratories (EDL) materials and procedures, and the adequacy of diagnostic and teaching procedures used in the Remedial Reading Classes. It then considers the evidence of pupil achievement.

Progress of children in Remedial Reading Classes as indicated by results on the Stanford Achievement Test and the Iowa Silent Reading Test is analyzed. Progress of children in the Laboratories as indicated by Stanford and Iowa testing is examined. Second, fourth, and sixth graders in Laboratories were individually tested on the Gray Oral Reading Test, a measure of Creativity, and three Semantic Differential measures. These measures are analyzed and reported.

Performance on the Laboratory instruments themselves is analyzed and correlated with select Iowa subtests. The correlational analysis shows the extent to which Laboratory performance predicts achievement.

The fourth graders in the Remedial Classes during quarter four are compared to a fourth grade control group. Stanford Achievement Test results, Gray Oral Reading Test results, performance on the Semantic Differential, the Miniscat test of Creativity and three personality measures are analyzed and interpreted.

Finally, the results of a questionnaire given to parents of children attending the Laboratories and another given to parents of children attending the Remedial Classes in quarter four are reported and interpreted.

In reading the report, several points should be remembered. The number of children on which data is reported will differ from test to test and this resulted from missing data due to absence or incomplete response. The Stanford Achievement and Iowa Silent Reading test scores are presented in grade equivalents in grades 1 - 9 and in standard scores for grages 10 - 12.

Educational Development Laboratories Program

The EDL program used in the Title I Laboratories is based on a body of research data. These are studies reported by the Educational Development Laboratories in which children trained with the Listen, Look, Learn Program did significantly better in reading achievement than children taught with basic readers. At the least, the Controlled Reader, an instrument that is central to the Laboratory program, appears to have some effect on encouraging speed and discouraging regressions. There are certain reading skills that cannot be taught with the Controlled Reader (e.g. outling a paragraph) and many that can be taught as easily without it.

The teacher's manual makes certain claims unsupported by research data, e.g. interspersed book reading "is not necessary to insure

transfer of training. ...the new skills, habits, and appreciations... will transfer automatically to book reading..." The literature on transfer of learning will not support such claims of automatic transfer.

Dispite these limitations, the EDL program as a whole appears to be effective in developing reading ability. This conclusion is supported by studies reported by the publisher. Independent research reported in journals should be identified periodically for indications of positive and/or negative effects of the program.

Diagnostic Procedures in Three Remedial Reading Classes

A survey of the remedial teachers established the following:

1. Children are sent to remedial reading after having been given only the standard group tests given every child.
2. Children are given more intensive diagnostic tests by the remedial reading teacher after assignment to the class.
3. A variety of other diagnostic tests (audiometric, individual intelligence, etc.) may be administered by the remedial reading teacher, school psychologist, or other specialist if needed and requested.
4. A large variety of materials and equipment is available and used in remedial classes.

From this information, it is concluded that the various diagnostic and teaching tools appear to be readily available and are used with those children requiring them.

Progress in Remedial Reading Classes

Remedial Reading Classes were conducted over four eight-week quarters at Washington, Edwards and Hardie elementary schools. Third graders attended in quarter 1, sixth graders in quarter 2, fifth graders in quarter 3 and fourth graders in quarter 4. Children in Remedial Reading Classes were given either pre- and post-tests on the

Stanford Achievement Test or the Iowa Silent Reading Test. A correlated t test was run to show whether progress over the eight-week period was significant. Results on third, sixth, and fifth graders are reported in Table 1. Fourth graders constitute the experimental-control study which is reported separately.

TABLE 1

COMPARISON OF PRE- AND POST-TESTS ON STANFORD ACHIEVEMENT TEST AND IOWA SILENT READING TEST OF REMEDIAL READING CLASSES

Quarter	Grade	Test	Subtest	n	Pre-Test Mean	Post-Test Mean	Correlated t	p
1	3	Stanford	Wd.Mng.	29	2.124	2.466	2.802	<.01
			Para.Mng.	28	2.071	2.661	3.978	<.001
2	6	Stanford	Wd.Mng.	7	5.114	5.843	1.696	NS
			Para.Mng.	7	5.629	5.886	1.058	NS
3	6	Iowa	Rate	16	6.044	7.475	1.158	NS
			Compr.	17	4.600	6.188	2.349	<.05
			Dir.Rdg.	17	5.547	6.582	1.353	NS
			Wd.Mng.	17	6.188	6.635	1.365	NS
			Para.Compr.	17	6.006	5.724	- .513	NS
			Sent.Mng.	17	6.947	6.894	- .144	NS
			Alpha	17	7.577	8.382	1.495	NS
			Index	17	5.629	7.406	2.188	<.05
3	5	Stanford	Wd.Mng.	10	4.010	4.600	2.102	NS
			Para.Mng.	10	4.110	4.750	1.460	NS
3	5	Iowa	Rate	15	4.413	5.767	1.104	NS
			Compr.	17	4.365	5.612	2.661	NS
			Dir.Rdg.	19	4.726	6.453	2.981	<.01
			Wd.Mng.	19	4.158	5.326	3.447	<.01
			Para.Compr.	19	3.468	5.300	3.261	<.01
			Sent.Mng.	14	4.971	5.793	2.000	NS
			Alph.	19	6.405	8.000	2.357	<.05
			Index	19	5.421	6.921	3.058	<.01

NS = Not Significant

Grade 3 in Remedial Reading at Washington, Edwards and Hardie in quarter 1 showed significant gains in word meaning and paragraph meaning on the Stanford Achievement Test.

Grade 5 Remedial Reading Classes at Washington and Hardie were administered the Iowa Silent Reading Test, Elementary. They showed appreciable gains on measures of directed reading, word meaning, paragraph comprehension, alphabetizing, and use of an index. Grade 5 children at Edwards were administered the Stanford Achievement Test and these children showed no appreciable gain on measures of word and paragraph meaning.

Grade 6 children at Washington and Hardie were administered the Iowa Silent Reading Test, Elementary. These children showed appreciable gains on comprehension and use of an index, but not on any of the other subtests. Grade 6 children at Edwards were administered the Stanford Achievement Test, and these children showed no appreciable gain on subtests of word meaning and paragraph meaning.

Analyses of variance were run on the breakdown for each grade level to show whether progress differed by levels of intelligence. These analysis were run on the subtest of paragraph meaning for the Stanford Achievement Test and rate and comprehension subtests for the Iowa Silent Reading. Multiple contrasts were made among means. The results of these analyses are shown in Table 2.

Higher as opposed to lower intelligence children showed appreciably greater gains on paragraph meaning for the Stanford Achievement in grade 3 classes on measures of rate and comprehension for the Iowa Silent Reading Test and paragraph meaning for the Stanford Achievement for grade 5 classes, and rate only for the Iowa Silent Reading Test for grade 6 children. Both higher and lower intelligence children showed appreciable gains in comprehension on the Iowa Silent Reading Test for sixth grade children. Higher as

TABLE 2

CONTRAST BETWEEN HIGHER AND LOWER INTELLIGENCE BY PRE- AND POST-TEST STANFORD ACHIEVEMENT TEST AND IOWA SILENT READING TEST SCORES FOR REMEDIAL READING CLASSES*

Grade 3						
Stanford	L PR	H PR	L PO	H PO	L	H
Par. Mng.	2.02	2.09	2.48	3.03	2.25	2.56
Grade 5						
Iowa	L PR	H PR	L PO	H PO	L	H
Rate	3.48	5.00	6.02	6.22	4.75	5.61
	L PR	L PO	H PR	H PO	L	H
Comprehension	4.00	4.87	5.13	7.03	4.43	6.08
Grade 5						
Stanford	L PR	H PR	L PO	H PO	L	H
Par. Mng.	4.05	4.20	4.48	5.15	4.27	4.68
Grade 6						
Iowa	H PR	L PO	H PO	L PR	L	H
Rate	3.50	6.84	7.13	7.14	7.28	5.78
	H PR	L PR	L PO	H PO	L	H
Comprehension	4.74	4.86	6.24	6.34	5.55	5.54
Grade 6						
Stanford	L PR	L PO	H PR	H PO	L	H
Par. Mng.	5.05	5.15	6.40	6.87	6.10	6.63

L = Low Intelligence
H = High Intelligence

PR = Pre-test
PO = Post-test

* All scores not underlined by the same line differ significantly at the $p<.05$ level.

opposed to lower intelligence children showed appreciably higher paragraph meaning scores on the Stanford Achievement Test on both pre- and post-test measures.

Progress in Reading Laboratories

Reading Laboratories were operated in Washington, Edwards and Hardie elemenatry schools. Children in these Laboratories had been given Stanford Achievement Tests in April, 1970 and April, 1971.

Individuals in grades 2 through 5 showed appreciable progress on both word meaning and paragraph meaning subtests. Sixth graders in Hardie and Edwards participated in the Laboratory, and these children showed no significant gains. Table 3 shows the results for these Laboratories.

TABLE 3

COMPARISON OF APRIL 1970 AND APRIL 1971 STANFORD ACHIEVEMENT TEST RESULTS FOR ELEMENTARY PUPILS IN READING LABORATORIES

Grade	Subtest	n	April 1970 Mean	April 1971 Mean	Correlated t	p
2	Wd.Mng.	26	1.558	2.185	3.905	<.001
	Para.Mng.	26	1.577	2.069	3.734	<.001
3	Wd.Mng.	34	2.029	2.782	4.518	<.001
	Para.Mng.	34	2.074	2.938	5.016	<.001
4	Wd.Mng.	27	2.915	3.437	3.133	<.01
	Para.Mng.	27	2.663	3.233	3.336	<.01
5	Wd.Mng.	16	3.956	4.619	2.194	<.05
	Para.Mng.	16	3.513	4.525	2.569	<.05
6	Wd.Mng.	6	5.283	5.850	1.622	NS
	Para.Mng.	6	4.750	5.950	1.901	NS

NS = Not Significant

A breakdown was made on intelligence and analyses of variance were run on the subtest of paragraph meaning on the Stanford Achievement for both third and fifth graders. Second, fourth and sixth graders in Laboratories were tested individually as well as on group tests and their data is presented separately. A contrast among mean scores was made and these are shown in Table 4.

TABLE 4

CONTRASTS BETWEEN HIGHER AND LOWER IQ CHILDREN FOR STANFORD ACHIEVEMENT TEST RESULTS IN PARAGRAPH MEANING FOR THIRD AND FIFTH GRADE CHILDREN IN READING LABORATORIES*

	L PR	H PR	L PO	H PO	L	H
Grade 3	1.91	2.33	2.64	3.33	2.28	2.83
Grade 5	3.19	3.93	3.96	5.26	3.57	4.59

L = Low Intelligence
H = High Intelligence
PR = Pre-test
PO = Post-test

* All scores not underlined by the same line differ significantly at the $p<.05$ level.

Appreciable gains on paragraph meaning were shown both for higher and lower intelligence children in grades third and fifth. The higher intelligence children scored higher on the pre-test and were appreciably higher on the post-test than lower intelligence children.

Second, fourth and sixth graders in Laboratories were tested individually. Sixty-two children in grades 2, 4 and 6 from Washington, Edwards and Hardie were given the Gray Oral Reading Test, Form A in April and June 1971 as a pre- and post-test. They showed an appreciable gain in oral reading performance over the period of approximately ten weeks. From a mean total passage score of 19.61 on the pre-test, performance on the post-test yielded a mean total passage score of 23.85. This gain was significant at <.001 level. The t value was 4.28.

In addition to the Gray Oral Reading Test, the children in grades 2, 4 and 6 were tested individually on Semantic Differential

Scales, and the Miniscat test of Creativity. The group was pre- and post- tested on Semantic Differential measures of "Myself," "My Ideal Self," and "My Teacher." The D^2 square statistic was applied to provide measures of self-idealization, teacher identification and teacher idealization. The smaller the D^2 the more similar in meaning the three concepts were judged, and the greater the degree of self idealization, teacher identification or teacher idealization. Pre-test D-Square measures were compared to corresponding post-test D-Square measures to determine whether significant changes occurred in the ten weeks between pre- and post-testing (April to June) in measures of Self-Idealization, Teacher Identification and Teacher Idealization. Analysis shows no significant changes occurred during the ten week interval. Results are shown in Table 5.

TABLE 5

COMPARISON OF PRE- AND POST-TEST SEMANTIC

DIFFERENTIAL D-SQUARE MEASURES

Measuare	n	Pre-test D-Square Mean	Post-test D-Square Mean	Correlated t	p
Self-Idealization	60	4.394	4.305	-0.402	NS
Teacher-Identification	61	4.118	3.847	-1.007	NS
Teacher-Idealization	55	4.002	4.330	1.308	NS

NS = Not Significant

Analyses of variance were run on the group of second, fourth and sixth graders with respect to intelligence and creativity and each of the other measures, viz., Stanford Achievement Test, Gray Oral and Semantic Differential D-Squares. Data was analyzed for the

group of sixty-two children from grades 2, 4, and 6. For purposes of the analysis it is assumed that grade scores on the Stanford are equivalent regardless of level and form of test used. Results of the analyses of variance are shown in Tables 6 through 17.

Results of the analyses of variance show significant differences between pre- and post-tests for the Stanford Achievement subtests and the Gray Oral Reading Test. The only other significant difference was for Stanford Word Meaning scores between high and low creative children, the high creative having significantly higher word meaning scores than the low creative.

TABLE 6

MEANS FOR STANFORD ACHIEVEMENT WORD MEANING SCORES OF HIGHER AND LOWER INTELLIGENCE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
2.565	2.358	3.096	2.931	2.831	2.644

L = Low Intelligence
H = High Intelligence

PR = Pre-test
PO = Post-test

Total pre- vs. total post- significant $p<.01$ level
Main effect (High vs. Low) not significant
Interaction (IQ by Pre- Post-) not significant

TABLE 7

MEANS FOR STANFORD ACHIEVEMENT PARAGRAPH MEANING SCORES OF HIGHER AND LOWER INTELLIGENCE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
2.427	3.046	2.231	2.823	2.737	2.527

L = Low Intelligence
H = High Intelligence

PR = Pre-test
PO = Post-test

Total pre- vs. total post- significant $p<.01$ level
Main effect (High vs. Low) not significant
Interaction (IQ by Pre- Post-) not significant

TABLE 8

MEANS FOR GRAY ORAL READING TEST SCORES OF HIGHER AND LOWER INTELLIGENCE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
20.920	17.240	24.280	23.000	22.600	20.120

L = Low Intelligence
H = High Intelligence
PR = Pre-test
PO = Post-test

Total pre- vs. total post- significant $p<.01$ level
Main effect (High vs. Low) not significant
Interaction (IQ by Pre- Post-) not significant

TABLE 9

MEANS FOR SELF-IDEALIZATION D-SQUARE SCORES OF HIGHER AND LOWER INTELLIGENCE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
4.309	4.199	4.451	4.006	4.380	4.103

L = Low Intelligence
H = High Intelligence
PR = Pre-test
PO = Post-test

Total pre- vs. total post- not significant
Main effect (High vs. Low) not significant
Interaction (IQ by Pre- Post-) not significant

TABLE 10

MEANS FOR TEACHER-IDENTIFICATION D-SQUARE SCORES OF HIGHER AND LOWER INTELLIGENCE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
3.858	4.034	3.519	3.693	3.689	3.864

L = Low Intelligence
H = High Intelligence
PR = Pre-test
PO = Post-test

Total pre- vs. total post- not significant
Main effect (High vs. Low) not significant
Interaction (IQ by Pre- Post-) not significant

TABLE 11

MEANS FOR TEACHER-IDEALIZATION D-SQUARE SCORES OF HIGHER AND LOWER INTELLIGENCE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
3.649	3.807	3.951	3.817	3.800	3.812

L = Low Intelligence
H = High Intelligence
PR = Pre-test
PO = Post-test

Total pre- vs. total post- not significant
Main effect (High vs. Low) not significant
Interaction (IQ by Pre- Post-) not significant

TABLE 12

MEANS FOR STANFORD ACHIEVEMENT WORD MEANING SCORES OF HIGHER AND LOWER CREATIVE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
2.833	2.070	3.459	2.574	3.146	2.322

L = Low Creative
H = High Creative
PR = Pre-test
PO = Post-test

Total pre- vs. total post- significant at $p<.01$ level
Main effect (High vs. Low) significant at $p<.05$ level
Interaction (Cr by Pre- Post) not significant

TABLE 13

MEANS FOR STANFORD ACHIEVEMENT PARAGRAPH MEANING SCORES OF HIGHER AND LOWER CREATIVE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
2.593	1.956	3.233	2.622	2.913	2.289

L = Low Creative
H = High Creative
PR = Pre-test
PO = Post-test

Total pre- vs. total post- significant at $p<.01$ level
Main effect (High vs. Low) not significant
Interaction (Cr by Pre- Post) not significant

TABLE 14

MEANS FOR GRAY ORAL READING TEST SCORES OF HIGHER AND LOWER CREATIVE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
21.419	17.806	27.323	20.387	24.371	19.097

L = Low Creative
H = High Creative
PR = Pre test
PO = Post test

Total pre- vs. total post- significant at $p<.05$ level
Main effect (High vs. Low) not significant
Interaction (Cr by Pre- Post-) not significant

TABLE 15

MEANS FOR SELF-IDEALIZATION D-SQUARE OF HIGHER AND LOWER CREATIVE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
4.602	4.091	4.244	4.120	4.423	4.106

L = Low Creative
H = Hihg Creative
PR = Pre-test
PO = Post-test

Total pre- vs. total post- not significant
Main effect (High vs. Low) not significant
Interactio (Cr by Pre- Post-) not significant

TABLE 16

MEANS FOR TEACHER-IDENTIFICATION D-SQUARE SCORES OF HIGHER AND LOWER CREATIVE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
4.071	4.032	4.158	3.412	4.114	3.722

L = Low Creative
H = High Creative
PR = Pre-test
PO = Post-test

Total pre- vs. total post- not significant
Main effect (High vs. Low) not significant
Interaction (Cr by Pre- Post-) not significant

TABLE 17

MEANS FOR TEACHER-IDEALIZATION D-SQUARE SCORES OF HIGHER AND LOWER CREATIVE GROUPS IN READING LABORATORIES

H PR	L PR	H PO	L PO	H	L
4.103	3.470	3.837	3.877	3.970	3.673

L = Low Creative
H = High Creative
PR = Pre-test
PO = Post-test

Total pre- vs. total post- not significant
Main effect (High vs. Low) not significant
Interaction (Cr by Pre- Post) not significant

Junior and Senior High School Laboratories

Reading Laboratories were also operated in Briscoe and Memorial Junior High Schools and in Beverly High School. Seventh graders at Briscoe and Memorial showed substantial progress on all subtests of the Iowa Elementary over a one-year period. Eighth graders at Briscoe and Memorial showed appreciable progress on subtests of comprehension, directed reading, and word meaning. Ninth graders at Memorial also participated in the Laboratories and these students showed no appreciable gains on any subtests of the Iowa Silent Reading Test, Elementary. Results are shown in Table 18.

Analyses of variance were run on breakdowns of intelligence for seventh, eighth and ninth graders to see if different progress was made within grade levels. These analyses were made on rate and comprehension subtests for the Iowa Silent Reading. The contrast among means for each grade level are shown in Table 19.

TABLE 18

COMPARISON OF PRE- AND POST-TEST ON IOWA SILENT READING TEST

ELEMENTARY OF JUNIOR HIGH PUPILS IN READING LABORATORIES

Grade		n	Pre-test Mean Grade Equivalent	Post-test Mean Grade Equivalent	Correlated t	p
7	Rate	43	5.161	7.447	4.025	<.001
	Compr.	43	5.109	6.886	3.414	<.01
	Dir. Rdg.	43	5.791	6.519	2.205	<.05
	Wd. Mng.	43	5.714	6.540	3.125	<.01
	Para. Compr.	43	5.405	6.751	3.087	<.01
	Sent. Mng.	43	5.202	6.347	2.922	<.01
	Alpha	43	6.186	8.821	3.879	<.001
	Index	43	6.091	7.549	3.555	<.001
8	Rate	37	6.335	7.246	1.799	NS
	Compr.	37	5.481	7.305	4.001	<.001
	Dir. Rdg.	37	6.414	7.370	2.797	<.01
	Wd. Mng.	37	6.289	6.943	2.064	NS
	Para. Compr.	37	6.127	6.484	.983	NS
	Sent. Mng.	37	6.295	6.638	.742	NS
	Alpha	37	8.873	9.487	1.320	NS
	Index	37	7.062	7.792	1.977	NS
9	Rate	8	6.438	8.963	2.017	NS
	Compr.	8	7.925	8.863	1.513	NS
	Dir. Rdg.	8	7.450	9.588	1.507	NS
	Wd. Mng.	8	7.263	8.050	1.475	NS
	Para. Compr.	8	5.813	7.050	1.058	NS
	Sent. Mng.	8	7.275	7.275	0.0	NS
	Alpha	8	7.025	10.475	2.015	NS
	Index	8	7.588	8.350	.964	NS

NS = Not significant

TABLE 19

CONTRAST ON INTELLIGENCE FOR PRE- AND POST-TEST SCORES ON THE IOWA SILENT READING TESTS FOR GRADES SEVEN, EIGHT AND NINE*

Grade 7	L PR	H PR	L PO	H PO	L	H
Rate	4.78	5.69	5.84	9.26	5.31	7.43
	L PR	L PO	H PR	H PO	L	H
Compr.	4.33	6.05	6.06	7.73	5.17	6.90
Grade 8	L PR	L PO	H PR	H PO	L	H
Rate	5.63	7.08	7.08	7.42	6.34	7.25
	H PR	L PR	L PO	H PO	L	H
Compr.	5.41	5.55	7.02	7.61	6.29	6.51
Grade 9	L PR	H PR	L PO	H PO	L	H
Rate	6.43	7.13	7.77	10.08	7.10	8.53
	L PR	L PO	H PR	H PO	L	H
Compr.	6.47	7.80	9.50	9.90	7.13	9.70

L = Low Intelligence
H = High Intelligence

PR = Pre-test
PO = Post-test

* Standard scores were available and were used in this analysis. All scores not underlined by the same line differ significantly at the $p<.05$ level.

Seventh graders showed appreciable gains for both higher and lower intelligence students, but higher as opposed to lower intelligence students had appreciably higher scores on both rate and comprehension on pre- and post-test measures of the Iowa Silent Reading.

Eighth graders of lower intelligence were lower on the rate subtest of the Iowa Elementary on the pre-test score but gained appreciably such that their post-test rate was no different than that of the higher intelligence children. Both higher and lower intelligence eighth graders showed appreciable gains on the comprehension subtest of the Iowa Silent Reading.

Ninth graders of higher intelligence showed appreciable progress on the rate subtest of the Iowa Silent Reading. Higher and lower

intelligence ninth graders differed on comprehension subtest scores of the Iowa Silent Reading, but showed no appreciable gains.

Students in grades 10 to 12 in Beverly High School were given the Iowa Silent Reading Test, Advanced. Results were available in terms of standard scores. In grade 10, students showed appreciable progress in subtests of rate, comprehension, directed reading, word meaning, and sentence meaning. Students in grade 11 showed appreciable improvement on subtests of comprehension and use of index. Students in grade 12 showed no appreciable improvement in any of the subtests of the Iowa Advanced. Results are shown in Table 20.

TABLE 20

COMPARISON OF PRE- AND POST-TESTS ON IOWA SILENT READING TEST ADVANCED OF HIGH SCHOOL PUPILS IN READING LABORATORIES

Grade	Subtest	n	Pre-test Mean Standard Score	Post-test Mean Standard Score	Correlated t	p
10	Rate	25	145.92	159.36	2.065	<.05
	Compr.	25	146.25	156.80	2.896	<.01
	Dir. Rdg.	25	153.16	165.84	3.435	<.01
	Poetry Compr.	25	150.96	162.40	1.794	NS
	Wd. Mng.	25	150.12	156.44	2.211	<.05
	Sent. Mng.	25	141.56	148.28	2.325	<.05
	Para. Compr.	25	147.36	152.08	1.245	NS
	Index	25	148.04	155.84	1.893	NS
	Key Words	25	156.28	157.60	.313	NS
11	Rate	20	141.25	149.30	1.977	NS
	Compr.	20	151.80	166.85	2.984	<.01
	Dir. Rdg.	20	161.50	161.85	.067	NS
	Poetry Compr.	20	148.60	160.65	1.605	NS
	Wd. Mng.	20	163.90	165.45	.866	NS
	Sent. Mng.	20	151.25	153.75	.745	NS
	Para. Compr.	20	146.15	153.85	2.015	NS
	Index	20	153.00	163.00	2.462	<.05
	Key Words	20	162.50	160.70	- .471	NS
12	Rate	6	156.17	163.33	.924	NS
	Compr.	6	154.67	168.67	1.440	NS
	Dir. Rdg.	6	170.00	172.83	1.173	NS
	Poetry Compr.	6	174.17	171.67	- .219	NS
	Wd. Mng.	6	174.17	178.50	.917	NS
	Sent. Mng.	6	165.50	162.33	- .394	NS
	Para. Compr.	6	154.17	161.67	1.947	NS
	Index	6	170.33	182.00	1.812	NS
	Key Words	6	160.33	167.33	1.215	NS

NS = Not significant

Analyses of variance were run on breakdowns of intelligence for tenth, eleventh and twelveth graders for rate and comprehension subtest scores for the Iowa Silent Reading, Advanced. The scores were available in Standard Form and these were used in the analysis. Contrasts were made among means for each grade level and these are shown in Table 21.

TABLE 21

CONTRASTS OF INTELLIGENCE FOR PRE- AND POST-TEST SCORES ON THE IOWA SILENT READING TEST FOR GRADES TEN ELEVEN AND TWELVE*

Grade 10	L PR	L PO	H PR	H PO	L	H
Rate	133.56	152.44	156.89	167.56	145.22	160.00
	L PR	L PO	H PR	H PO	L	H
Compr.	141.11	148.33	151.56	162.33	144.72	156.94
Grade 11	L PR	L PO	H PR	H PO	L	H
Rate	129.67	141.78	150.44	155.44	135.72	153.94
	L PR	**L PO**	**H PR**	**H PO**	L	H
Compr.	144.11	154.67	157.33	178.11	149.39	167.72
Grade 12	H PR	H PO	L PR	L PO	L	H
Rate	151.00	155.67	167.00	169.00	168.00	153.33
	H PR	H PO	L PR	L PO	L	H
Compr.	151.00	154.33	164.50	173.00	168.75	152.67

L = Low Intelligence
H = High Intelligence
PR = Pre-test
PO = Post-test

* Standard scores were available and were used in this analysis. All scores not underlined by the same line differ significantly at the $p<.05$ level.

Tenth graders of higher as opposed to lower intelligence scored appreciably greater gains on the comprehension subtest scores. Both higher and lower intelligence tenth graders showed appreciable gains on the rate subtest score, but higher as opposed to lower intelligence students were appreciably higher on the pre-test and were appreciably higher on the post-test.

Eleventh graders of lower as opposed to higher intelligence showed appreciably greater progress on the rate subtest. The lower intelligence children started out appreciably lower on the pre-test and ended up no different than higher intelligence eleventh graders on the post-test. Both higher and lower intelligence eleventh garders showed appreciable progress on the comprehension subtest, but higher as oppsed to lower intelligence studenst had higher pre- and post-test scores.

Twelfth graders of lower as opposed to higher intelligence had appreciably higher scores on the comprehension subtest, but there were no appreciable differences on the rate subtest.

The Experimental-Control Study

Sixty children were selected from fourth grade students with remedial reading problems in the Beverly Public Schools and half were assigned either to experimental or control conditions. Children in experimental and control conditions were matched pairwise on the April 1971 California Intelligence Scores obtained from the April 1971 statewide testing and on the basis of the April 1970 Stanford measures of word and paragraph meaning.

The students in the Remedial Reading program were assigned to Washington, Edwards and Hardie. Measures were obtained on these children on personality indices to see how individual differences may influence performance of children in remedial reading tasks. These measures were obtained during the fourth school quarter in Beverly. Of the sixty children, 48 were tested both in April and June and this was the sample on which analyses are reported. Pre- and post-test measures were obtained on the Gray Oral Reading Test

the Childrens' Manifest Anxiety Test, Childrens' Dogmatism Test, The Reactive Curiosity Test, and Semantic Differential Measures of Teacher-Identification, Self-Idealization, and Teacher-Idealization. A pre-test only measure was made on the Miniscat Measure of Creativity. Comparisons were made on each of these measures using analysis of variance. The means for the pre- post- and the experimental-control comparisons are shown in Table 22. Multiple contrasts were made within the analyses of variance with Dunns Test.

TABLE 22

CONTRASTS OF MEAN SCORES ON MEASURES OF PERSONALITY CHARACTERISTICS FOR EXPERIMENTAL CONTROL GROUPS BY PRE- POST-TEST SCORES*

Personality Characteristics	Conditions							
Curiosity	E PR 35.71	E PO 36.08	C PO 43.21	C PR 43.67	PR 39.69	PO 39.65	E 35.90	C 43.44
Anxiety	C PO 34.79	E PO 35.42	C PR 36.38	E PR 36.46	PO 35.10	PR 36.42	C 35.58	E 35.95
Open Mindeness	E PR 61.29	E PO 65.46	C PR 75.17	C PO 75.67	PR 68.73	PO 70.56	E 63.77	C 75.42
Gray Oral	E PR 25.33	E PO 28.67	C PR 30.42	C PO 31.29	PR 27.88	PO 29.98	E 27.00	C 30.85
Self-Idealization	E PR 3.81	E PO 4.09	C PO 4.25	C PR 4.56	PO 4.17	PR 4.18	E 3.95	C 4.41
Teacher-Identification	C PO 3.12	E PO 3.63	E PR 3.94	C PR 4.44	PO 3.39	PR 4.18	C 3.78	E 3.88
Teacher-Idealization	E PR 3.31	C PR 3.69	C PO 3.83	E PO 3.85	PR 3.50	PO 3.84	C 3.58	E 3.76

E = Experimental
C = Control

PR = Pre-test
PO = Post-test

* All scores not underlined by the same line differ significantly at the $p<.05$ level

Results

The experimental and control groups differed a priori on all measures except anxiety and teacher idealization. Although students were matched on word and paragraph subtest scores for the April, 1970 Stanford Achievement Test, they differed appreciably on the April, 1971 Stanfords. Appreciable change was shown in forms of anxiety reduction and increased teacher identification for fourth graders in both experimental and control conditions.

Differential change was obtained on measures of Gray Oral Reading and self-idealization. The students in the experimental as opposed to the control group were appreciably lower on the pre-test scores but showed progress such that their scores on the Gray Oral did not differ from those of the control on the post-test. In contrast, students in the experimental groups showed a decrease in self-idealization while those in the control group showed an increase in self-idealization. The fourth graders in the experimental as opposed to those in the control conditions showed appreciably higher self-idealization at the pre-test but did not differ on the post-test.

Breakdowns were made on the pre-test personality characteristic scores such that fourth graders were identified as higher or lower on each characteristic within the experimental and control conditions. Analyses of variance were made on the pre- and post-test scores for dogmatism, curiosity, Gray Oral Reading, anxiety, Semantic Differential measures of self-idealization, teacher identification, teacher idealization and the subtests of paragraph and word meaning from the Stanford.

The results of the analysis on the pre- and post-test scores for the personality characteristics were spotty and only selected results

are reported. Higher as opposed to lower curoisity children showed a greater teacher idealization with mean teacher idealization scores of 3.14 for higher curiosity and 4.21 for lower curiosity children. Higher as opposed to lower intelligence fourth graders showed lower dogmatism scores. The mean dogmatism score was 64.77 for higher intelligence and 74.02 for lower intelligence fourth graders. The experimental as opposed to the control condition were comprised of children with lower dogmatism scores. The children in the experimental had a mean dogmatism score of 63.37 as opposed to a score of 75.42 for fourth graders in the control condition.

The results on the comparison on the Stanford Achievement Test were somewhat more revealing and are shown in Table 23. Appreciable progress was shown for experimental but not for control subjects on both subtests of word and paragraph meaning. The fourth graders in the experimental as opposed to control were lower on both subtests on the pre-test but showed progress such that there was no appreciable difference on the post-test.

Fourth graders who were higher as opposed to lower on the Gray Oral Reading pre-test showed appreciably greater progress on the subtest of paragraph meaning but this did not hold true for the subtest of word meaning. Higher as opposed to lower intelligence fourth graders did appreciably better on pre- and post-test scores for both subtests of word and paragraph meaning. Finally, lower as opposed to higher dogmatism fourth graders showed appreciably greater progress on the paragraph meaning subtest, and showed higher achievement on the pre-and post-test scores for the word meaning subtests.

Although this data provides indications of progress on the Remedial Reading program, the results are obscured by pre-test difference in

characteristics for experimental and control group subjects. This should be accommodated in subsequent work by random and not matched assignment of subjects to experimental and control conditions.

TABLE 23

CONTRAST AMONG MEAN SCORES FOR SUBTESTS ON PARAGRAPH AND WORD MEANING ON THE STANFORD ACHIEVEMENT TEST FOR FOURTH GRADERS ON BREAKDOWNS BY EXPERIMENTAL-CONTROL GROUPS, OPEN MINDENESS, GRAY ORAL READING, INTELLIGENCE AND PRE- POST- *

Exp.-Cont.	E PR	C PR	C PO	E PO	E	C
Wd. Mng.	2.99	3.90	4.07	4.08	3.50	3.98
Exp.-Cont.	E PR	C PR	E PO	C PO	E	C
Para. Mng.	3.10	3.68	3.97	3.98	3.54	3.83
Dogmatism	H PR	L PR	H PO	L PO	H	L
Wd. Mng.	3.26	3.62	3.78	4.30	3.52	3.96
Dogmatism	H PR	L PR	H PO	L PO	H	L
Para. Mng.	3.31	3.48	3.72	4.23	3.51	3.85
Gray Oral	L PR	H PR	L PO	H PO	L	H
Wd. Mng.	3.27	3.62	3.65	4.43	3.46	4.02
Gray Oral	L PR	H PR	H PO	L PO	H	L
Para. Mng.	3.20	3.59	3.76	4.19	3.89	3.48
Intelligence	L PR	L PO	H PR	H PO	L	H
Wd. Mng.	3.20	3.60	3.68	4.48	3.40	4.08
Intelligence	L PR	L PO	H PR	H PO	L	H
Para. Mng.	3.07	3.60	3.72	4.35	3.33	4.03
Anxiety	L PR	H PR	L PO	H PO	L	H
Wd. Mng.	3.38	3.51	3.93	4.15	3.65	3.83
Anxiety	L PR	H PR	L PO	H PO	L	H
Para. Mng.	3.24	3.54	3.75	4.20	3.50	3.87
Creativity	L PR	H PR	L PO	H PO	L	H
Wd. Mng.	3.28	3.61	3.95	4.13	3.61	3.87
Creativity	L PR	H PR	L PO	H PO	L	H
Para. Mng.	3.22	3.57	3.93	4.03	3.55	3.80
Curiosity	H PR	L PR	H PO	L PO	H	L
Wd. Mng.	3.26	3.63	4.01	4.07	3.64	3.85
Curiosity	H PR	L PR	H PO	L PO	H	L
Para. Mng.	3.20	3.58	3.91	4.03	3.56	3.81

H = High L = Low E = Experimental C = Control
PR = Pre-test PO = Post-test

* All means not underlined by the same line differ significantly at the $p<.05$ level.

Results on Controlled Reader and Tach X in Laboratories

Results on the Tach X and Controlled Reader comprehension and rate (in numerical settings on the Controlled Reader) were available for elementary level children at Hardie. As Table 24 shows, a few of the gains were significant. In part this was due to the small number of children in each grade on whom these data were reported.

TABLE 24

COMPARISON OF INITIAL AND FINAL MEASURES OF TACH-X INDEX AND CONTROLLED READER SPEED SETTING AND COMPREHENSION OF ELEMENTARY PUPILS AT HARDIE

Grade	n	Measure	Initial	Final	Correlated t	p
2	7	T-X Index	54.00	52.29	0.339	NS
	5	CR Speed	15.00	20.00	2.000	NS
	5	CR Compr.	83.20	89.60	1.184	NS
3	8	T-X Index	52.00	64.63	1.454	NS
	8	CR Speed	20.00	30.63	2.603	<.05
	8	CR Compr.	85.88	80.50	-1.294	NS
4	10	T-X Index	47.10	48.20	0.216	NS
	9	CR Speed	20.00	26.67	2.000	NS
	9	CR Compr.	74.33	85.67	2.468	<.05
5	5	T-X Index	50.60	71.80	1.217	NS
	5	CR Speed	30.60	42.40	1.310	NS
	5	CR Compr.	72.40	88.60	1.788	NS
6	3	T-X Index	51.33	78.33	1.265	NS
	3	CR Speed	28.33	49.67	1.378	NS
	3	CR Compr.	78.67	94.00	1.275	NS

NS = Not significant

Results on the Tach-X and Controlled Reader Comprehension and rate (in words per minute) were available for junior high school pupils at Briscoe. Results on the Controlled Reader, but not Tach-X, were available for pupils at Memorial Junior High School.

Performance in speed and accuracy of perception as indexed by the Tach-X showed appreciable improvement over the one year period

of time. Performance on rate and comprehension measures obtained from the Controlled Reader also showed appreciable progress for seventh and eighth graders. Results from the Tach-X and Controlled Reader are shown in Table 25. Publishers mid-year reading rate norms on the Controlled Reader are 195 words per minute for seventh grade and 204 words per minute for eighth grade. Pupil achievement approached, but did not overtake, these norms.

TABLE 25

COMPARISON OF INITIAL AND FINAL MEASURES OF TACH-X INDEX AND CONTROLLED READER RATE AND COMPREHENSION OF JUNIOR HIGH SCHOOL PUPILS

Grade	n	Measure	Initial	Final	Correlated t	p
7	22	T-X Index	60.82	74.50	3.0918	<.01
	42	CR Rate	140.76	173.31	3.0826	<.01
	42	CR Compr.	80.12	87.14	3.8065	<.01
8	18	T-X Index	64.78	75.67	2.3975	<.05
	38	CR Rate	148.97	191.47	4.6200	<.01
	38	CR Compr.	83.03	88.08	2.3070	<.05
9	8	CR Rate	174.88	210.00	2.2783	NS
	8	CR Compr.	91.25	91.25	0.0	NS

NS = Not significant

Correlations were run between the pre- and post-tests on the Iowa subtests and the Controlled Reader and Tach-X measures. The purpose was to assess the usefulness of Tach-X and Controlled Reader data in judging the expected achievement in subtest skills.

The Tach-X post-test scores are positively correlated with both Controlled Reader post-test comprehension scores, Table 26 and with Iowa scores at Briscoe, Table 27, whereas Tach-X pre-test scores are typically not correlated significantly. This indicates that the better readers do better than poorer readers on the Tach-X after

training. The Tach-X pre-test scores do not have value in predicting achievement on standardized reading tests.

TABLE 26

COEFFICIENTS OF CORRELATION BETWEEN TACH-X INDEX AND CONTROLLED READER PERFORMANCE FOR SEVENTH AND EIGHTH GRADERS AT BRISCOE JUNIOR HIGH SCHOOL WITH N = 40

	T-X PRE	T-X Post
Pre		
CR Rate	.126	.370*
CR Compr.	.087	.264
Post		
CR Rate	.035	.310
CR Compr.	-.061	.417**

* Significant at $p<.05$ level
** Significant at $p<.01$ level
Others not significant

TABLE 27

COEFFICIENTS OF CORRELATION BETWEEN TACH-X INDEX AND SELECTED IOWA ELEMENTARY GRADE SCORES FOR SEVENTH AND EIGHTH GRADES AT BRISCOE JUNIOR HIGH SCHOOL WITH N = 40

Iowa Pre	T-X Pre	T-X Post
Rate	-.288	.201
Compr.	-.016	.371*
Wd. Mng.	-.128	.335*
Index	.060	.199
Iowa Post		
Rate	-.116	.413*
Compr.	.112	.570**
Wd. Mng.	.098	.498**
Index	.140	.511**

* Significant at $p<.05$ level
** Significant at $p<.01$ level
Others not significant

At the junior high level, Controlled Reader pre-test performance in rate has some value as a predictor of reading rate on the Iowa test. This is shown in Table 28. Failure of Controlled Reader post-test to correlate with other subtests of the Iowa post-test, though having a low correlation with the Iowa pre-test scores in comprehension and word meaning performance on the post-test suggests that the amount completed by the child on the pre-test had a great deal to do with his score, whereas on the post-test his increased speed enabled him to complete the easy items, and the scores in comprehension and word meaning more truly reflected his understanding and vocabulary. This is supported by the decrease in correlation between Iowa rate and comprehension from .278 on the pre-test (significant at $\rho<.05$) to .085 on the post-test (not significant).

TABLE 28

COEFFICIENTS OF CORRELATION BETWEEN SELECTED IOWA ELEMENTARY GRADE SCORES AND CONTROLLED READER PERFORMANCE FOR SEVENTH, EIGHTH AND NINTH GRADERS AT BRISCOE AND MEMORIAL JUNIOR HIGH SCHOOLS WITH N = 88

Iowa Pre	Rate	Compr.	Rate	Compr.
Rate	.360**	.148	.389**	.245*
Compr.	.479**	.127	.369**	.101
Wd. Mng.	.456**	.230*	.230*	.229*
Index	.392**	.124	.062	.162
Iowa Post				
Rate	.477**	.282**	.404**	.298**
Compr.	.342**	.259*	.081	.329**
Wd. Mng.	.376**	.253*	.144	.296**
Index	.281**	.174	.099	.200

* Significant at $\rho<.05$ level
** Significant at $\rho<.01$ level
Others not significant

Parents Questionnaires

Questionnaires were sent to parents of children in Laboratories and Remedial Reading Classes (quarter 4). The questionnaires sought to determine how parents perceived their children's reaction to the reading program. Although responses consisted of checking one of several choices for each item, the parents frequently added comments and qualifying statements. These indicate their intent to be candid.

Responses are summarized in Table 29 and 30. In general, parents view the program favorably. They see improvement in their children's attitudes and reading, or they can see no change. For the most part, the children enjoy the reading classes or laboratories according to the parents.

TABLE 29

RESPONSES OF PARENTS* OF CHILDREN ATTENDING THE READING LABORATORY AT WASHINGTON, EDWARDS, AND HARDIE

		Number
1.	Child's interest in reading	
	a. grew worse	1
	b. remained the same	12
	c. increased	48
2.	Child's attitude toward reading	
	a. grew worse	1
	b. remained the same	10
	c. improved	49
3.	Child's attitude toward school in general	
	a. grew worse	1
	b. remained the same	27
	c. improved	34
4.	How child feels about the Reading Laboratory	
	a. is unhappy there	0
	b. enjoys it	56
	c. has no strong feelings either way	5
5.	Did instruction in the Laboratory help improve childs reading ability?	
	a. yes	57
	b. no	0
	c. cannot tell	5
6.	Compared to last year, number of books child reads for enjoyment has	
	a. increased	40
	b. decreased	0
	c. remained the same	19

* Responses of parents of 39 boys and 23 girls in grades 1 - 6

TABLE 30

RESPONSES OF PARENTS* OF CHILDREN ATTENDING REMEDIAL READING CLASSES AT WASHINGTON, EDWARDS AND HARDIE*

		Number
1.	Child's interest in reading	
	a. grew worse	0
	b. remained the same	14
	c. increased	14
2.	Child's attitude toward reading	
	a. grew worse	0
	b. remained the same	9
	c. improved	19
3.	Child's attitude toward school in general	
	a. grew worse	1
	b. remained the same	8
	c. improved	19
4.	Child's feeling when told he would attend remedial reading classe	
	a. did not like the idea	10
	b. was enthusiastic	16
	c. was neither unhappy nor enthusiastic	1
5.	Child's present feeling about remedial reading class	
	a. is unhappy there	1
	b. enjoys it	23
	c. has no strong feelings either way	4
6.	Has remedial reading improved child's reading ability?	
	a. yes	18
	b. no	1
	c. cannot tell	9
7.	In the time child has been in remedial reading, number of books read for enjoyment	
	a. increased	9
	b. decreased	0
	c. remained the same	19

* Responses of parents of 15 boys and 13 girls in grade 4